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Art Unit 3651

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Harry Bussey, Jr., et al
Serial No: 10/725,127
Filed: December 1, 2003
TITLE: Steam Expander for Loose Fill Material

Customer No.:27192

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief

Sir:

This is an appeal from the Final Rejection dated July 13, 2006 of claims 1 to 8.

This Brief is being submitted in response to the Notification of Non-Compliant Appeal Brief dated May 10, 2007.

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TABLE OF CONTENTS

	Page
Real Party in Interest	3
Related Appeals and Interferences	3
Status of Claims	3
Status of Amendments	3
Summary of Claimed Subject Matter	3
Grounds of rejection to be reviewed on Appeal	4
Argument	5
Claims Appendix	
Evidence Appendix	none
Related proceedings Appendix	none

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REAL PARTY IN INTEREST

The real parties in interest are the individual named inventors.

RELATED APPEALS AND INTERFERENCES

There are no related Appeals or Interferences.

STATUS OF CLAIMS

Claims 1 to 8 have been rejected and are under appeal.

Claims 9 to 16 have been objected to as depending from a rejected base claim but would be allowable if rewritten in independent form.

STATUS OF AMENDMENTS

A Request for Reconsideration filed July 26, 2006 has been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1

Claim 1 is directed to a steam expander comprising at least one hopper (14) for supplying expandable loose fill material, at least one housing (12) having an inlet (18) in communication with the hopper (14) to receive a flow of loose fill material and a screw (19) rotatably mounted in the housing (12) for conveying the loose fill material received through the inlet (18) towards an outlet (20). (Fig. 4; Page 4, lines 1-17).

In addition, claim 1 requires a steam chamber (25) to be in communication with the outlet (20) of the housing (12) to receive loose fill material and a paddle frame (26) to be rotatably mounted in the steam chamber (25) to rotate about a central axis. (Fig. 4, page 5, lines 8 to last).

Claim 1 also requires the paddle frame (26) to have at least one scoop (28) mounted on a periphery and extending longitudinally of the frame in spaced parallel

relation to the central axis of the steam chamber (25). (Fig. 4; page 5, lines 17- 20). The scoop (28) is disposed in spaced relation to the outlet (20) of the housing (12) for scooping loose fill material delivered into the steam chamber (25) peripherally of the steam chamber (25). (Fig. 4; page 5, lines 20 -24).

Independent claim 5

Claim 5 is directed to a steam expander having a pair of hoppers (14), a pair of housings (12) and a pair of screws (19) each as recited in claim 1 and communicating with a steam chamber (25) having a paddle frame (26) as in claim 1. (Fig. 2; Page 4, lines 1- 4; lines 15-17; page 5, lines 4-6 and lines 15-17).

Grounds of Rejection to be reviewed on Appeal

- I. Whether claims 1 to 3 are anticipated by Harrison (US 5,744,186) under 35 USC 102(b).
- II. Whether claim 4 is unpatentable over Harrison (US 2,278,875) in view of Whiteman (US 4,328,913) under 35 USC 103(a).
- III. Whether claims 5 to 7 are unpatentable over Harrison (U.S. 2,278,875) in view of Trotter (US 3,02,128) and Martin (US 3,041,185) under 35 USC 103(a).
- IV. Whether claim 8 is unpatentable over Harrison (US 2,278,875) in view of Trotter (US 3,02,128) and Martin (US 3,041,185) and Whiteman (US 4,328,913) under 35 USC 103(a).

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ARGUMENT**Claim 1 is not anticipated
by Harrison under 35 USC 102(b)****A. Harrison is a non-analogous structure.**

Claim 1 is directed to a steam expander. Harrison is not a steam expander. Instead, Harrison is directed to a method for preparing animal food pellets. As described, mash is fed through a hopper 2 into a variable speed screw feeder 3 and advanced in a plug-type flow caused by a seal member 4. The solid plug of mash is forced through a sealed area 5 into a superatmospheric chamber 15 and pressure cooked therein. (See column 4, lines 47 to 52 and column 5, lines 37-38). As such, Harrison is directed to a non-analogous structure. For this reason alone, a rejection of claim 1 as being anticipated by Harrison is not warranted by the provisions of 35 USC 102(b).

B. Harrison does not have a hopper for supplying expandable loose fill material or a housing to receive loose fill material.

Claim 1 requires the steam expander to have "at least one hopper for supplying expandable loose fill material" and "at least one housing having an inlet in communication with said hopper to receive a flow of loose fill material therefrom". Harrison does not describe or teach such structures. That is, Harrison describes a hopper 2 and a screw feeder 3 for mash.

As set forth at MPEP 2173.01 (Claim Terminology), a fundamental principle contained in 35 USC 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention

essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. Applicants may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

The Courts have held that a functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, (supra).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. *Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Clr. 2004),

In Harrison, the screw feeder 2 presses the mash 1 against a seal member to form a solid plug. One of ordinary skill in the art would not use the screw feeder 2 of Harrison to press expandable loose fill material against the seal 4 as such would serve no useful purpose. For example, if the expandable material is to be expanded in the

chamber 15, compressing the material against the seal 4 before entry into the chamber 15 would be a contradiction.

For the above reason, a rejection of claim 1 as being anticipated by Harrison is not warranted by the provisions of 35 USC 102(b).

C. Harrison does not have a paddle frame with a scoop as claimed.

Claim 1 requires "a paddle frame rotatably mounted in said chamber to rotate about a central axis" and specifically requires the paddle frame to have "at least one scoop mounted on a periphery thereof and extending longitudinally thereof in spaced parallel relation to said central axis". Harrison is void of any such structure.

Harrison describes the chamber 15 as having "a paddle conveyor 17 or other like means" (column 5, line37). The paddle conveyor 17 is not otherwise described.

Fig. 1 of Harrison illustrates the paddle conveyor 17 as an elongated shaft with a plurality of radially disposed flat plates secured along the shaft with each plate skewed relative to the longitudinal axis of the shaft (note the angularity of the 4 horizontal plates extending out of the plane of the drawing).

There is no "scoop mounted on a periphery" of the paddle conveyor (i.e. the horizontal shaft and plates) of Harrison.

There is no scoop that extends "longitudinally" of the paddle frame "in spaced parallel relation to the central axis" in Harrison. Note, if one were to endeavor to read the plates of Harrison as scoops, the plates do not extend longitudinally of the shaft but instead extend radially of the shaft and the plates are not in parallel with the axis of the shaft but instead are skewed to the axis of the shaft.

Claim 1 further requires the scoop to be "disposed in spaced relation to said outlet of said housing for scooping loose fill material delivered into said steam chamber peripherally of said steam chamber". Harrison is void of any such structure. Note that there is no disclosure in Harrison as to the function of the plates of the paddle conveyor 17. Further, the Examiner has not presented any basis in fact and/or technical reasoning to reasonably support a determination that the plates of Harrison are for scooping mash delivered into the chamber 15 peripherally of the chamber 15. "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

In view of the above, a rejection of claim 1 as being anticipated by Harrison is not warranted pursuant to the provisions of 35 USC 102(b).

**Claim 2 is not anticipated
by Harrison under 35 USC 102(b)**

Claim 2 depends from claim 1 and further requires the paddle frame to have "a pair of said scoops disposed on diametrically opposite sides thereof". Harrison is void of such a structure. Further, note that the plates of the paddle conveyor 17 are not diametrically disposed. Accordingly, a rejection of claim 2 as being anticipated by Harrison is not warranted pursuant to the provisions of 35 USC 102(b).

**Claim 3 is not anticipated
by Harrison under 35 USC 102(b)**

Claim 3 depends from claim 2 and further requires each scoop to be of L shape. Harrison is void of such a structure. Further, note that the plates of the paddle conveyor

17 are flat. Accordingly, a rejection of claim 3 as being anticipated by Harrison is not warranted pursuant to the provisions of 35 USC 102(b).

**Claim 4 is not unpatentable over Harrison
in view of Whiteman under 35 USC 103(a)**

Claim 4 depends from claim 1 and further requires "at least some of said flights being disposed in alignment with said inlet and being of a smaller radius than the remainder of said flights". While Whiteman describes an auger with flights of different heights, one of ordinary skill in the art would not be motivated by this teaching to modify the screw feeder 3 of Harrison to have a screw with flights of different diameters. As described in Applicants' description in the paragraph bridging pages 4 and 5:

As illustrated, the flights 21' disposed in alignment with the inlet 18 are of a smaller radius than the remainder of the flights 21. In this way, an annular space 22 is provided between the flights 21' of reduced diameter and the surrounding wall 23 of the housing 12, for example, as described in US patent 4,379,106 to prevent breaking of the elements during travel along the screw 19. This annular space 22 allows the received loose fill material to be circumferentially disposed about the screw 19 and conveyed in a gentle manner without compression of the individual elements of the material. In this way, fracturing, splitting and flaking of the elements is avoided.

In Harrison, the screw feeder 3 presses the mash against a seal member 4. Thus, providing flights of different heights to provide annular spaces in which the mash would be conveyed in a gentle manner without compression, is contrary to the teaching of Harrison that the mash is to be compressed. Accordingly, a rejection of claim 4 as being unpatentable over Harrison in view of Whiteman under 35 USC 103(a)

**Claim 5 is not unpatentable over
Harrison in view of Trotter and Martin
under 35 USC 103(a)**

Claim 5 stands or falls with claim 1.

Claim 6 is not unpatentable over

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Harrison in view of Trotter and Martin
under 35 USC 103(a)

Claim 6 depends from claim 5 and stands or falls with claim 2.

Claim 7 is not unpatentable over
Harrison in view of Trotter and Martin
under 35 USC 103(a)

Claim 7 depends from claim 6 and stands or falls with claim 3.

Claim 8 is not unpatentable over
Harrison in view of Trotter and Martin
and Whiteman under 35 USC 103(a)

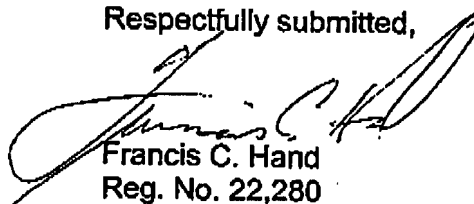
Claim 8 depends from claim 5 and stands or falls with claim 4.

SUMMARY

For the reasons set forth above the Final Rejection of claims 1 to 8 should be reversed.

The application is believed to be in condition for allowance and such is respectfully requested.

Respectfully submitted,



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APPENDIX

1. A steam expander comprising
 - at least one hopper for supplying expandable loose fill material;
 - at least one housing having an inlet in communication with said hopper to receive a flow of loose fill material therefrom and an outlet for discharging the received loose fill material therefrom ;
 - a screw rotatably mounted in said housing for conveying loose fill material received through said inlet towards said outlet;
 - a steam chamber in communication with said outlet of said housing to receive loose fill material therefrom; and
 - a paddle frame rotatably mounted in said chamber to rotate about a central axis, said paddle frame having at least one scoop mounted on a periphery thereof and extending longitudinally thereof in spaced parallel relation to said central axis, said scoop being disposed in spaced relation to said outlet of said housing for scooping loose fill material delivered into said steam chamber peripherally of said steam chamber.
2. A steam expander as set forth in claim 1 wherein said paddle frame has a pair of said scoops disposed on diametrically opposite sides thereof.
3. A steam expander as set forth in claim 2 wherein each said scoop is of L shape.
4. A steam expander as set forth in claim 1 wherein said screw has a plurality of flights for conveying received loose fill material towards said outlet during rotation of

said screw, at least some of said flights being disposed in alignment with said inlet and being of a smaller radius than the remainder of said flights.

5. A steam expander comprising

a pair of hoppers for supplying expandable loose fill material;

a pair of housings, one of said housings having an Inlet in communication with one of said hoppers to receive a flow of loose fill material therefrom and a second of said housings having an inlet in communication with the other of said hoppers to receive a flow of loose fill material therefrom, each said housing having a respective outlet for discharging the received loose fill material therefrom;

a pair of screws, one of said screws being rotatably mounted in one of said housings and disposed for conveying loose fill material received through said inlet of said one housing towards said outlet thereof and the other of said screws being rotatably mounted in the other of said housings and disposed for conveying loose fill material received through said inlet thereof towards the said outlet thereof;

a steam chamber in communication with said outlets of said housings to receive loose fill material therefrom; and

a paddle frame rotatably mounted in said chamber to rotate about a central axis, said paddle frame having at least one scoop mounted on a periphery thereof and extending longitudinally thereof in spaced parallel relation to said central axis, said scoop being disposed in spaced relation to said outlets of said housing for scooping loose fill material delivered into said steam chamber peripherally of said steam chamber.

6. A steam expander as set forth in claim 5 wherein said paddle frame has a pair of said scoops disposed on diametrically opposite sides thereof.
7. A steam expander as set forth in claim 6 wherein each said scoop is of L shape.
8. A steam expander as set forth in claim 5 wherein said screw has a plurality of flights for conveying received loose fill material towards said outlet during rotation of said screw, at least some of said flights being disposed in alignment with said inlet and being of a smaller radius than the remainder of said flights.

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